

Curriculum Vitae

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Research Topics in Theoretical Condensed Matter Physics

Multiphase coexistence in manganites
Optical and magnetic properties of colossal magnetoresistive manganites
Non-equilibrium state of heavy fermion compounds
Heterogeneities in high-T_c superconducting cuprates
Spin current transport into polymers
Symmetry-based atomic scale theory of elasticity
Dynamic response of materials observed by ultrafast optics
Interpretation of X-ray spectroscopy, such as resonant inelastic X-ray scattering

Research Experience

2004-present	Argonne National Laboratory Advanced Photon Source Post-Doctoral Research Associate Collaborators: M. van Veenendaal, M. Norman
2001-2004	Los Alamos National Laboratory Theoretical Division Post-Doctoral Research Associate Collaborators: A. R. Bishop, P. B. Littlewood, T. Lookman, A. Saxena, S. A. Trugman, D. Smith

Education

1994-2000	The Johns Hopkins University Ph. D. in Physics Thesis: Theory of colossal magnetoresistive perovskite manganites Advisor: Prof. A. J. Millis (now at Columbia University)
1992-1994	Seoul National University, South Korea M. S. in Physics Thesis: The three-flavor MSW effect and its application to the cosmologically decoupled neutrinos Advisor: Prof. J. E. Kim
1988-1992	Seoul National University, South Korea B. S. in Physics

Thesis: On the linearity of the transformation in special relativity

Honors

- Graduation with honors, Seoul National University, Seoul, South Korea, 1992
- Honor prize, Seoul National University, Seoul, South Korea, 1988

Teaching Experience at The Johns Hopkins University

- Teaching assistant for Graduate Electromagnetism, February 1997 – May 1997
- Teaching assistant for General Physics, February 1996 – January 1997
- Teaching assistant for Radiative Astrophysics, September 1995 – January 1996
- Teaching assistant for General Physics, September 1994 – May 1995

Professional Service

Referee for *Phys. Rev. Lett.* and *Phys. Rev. B* (5 papers per year since 1999).

Invited Presentations

1. *Strain-induced metal-insulator phase coexistence in perovskite manganites*
2005 APS March Meeting, Los Angeles, California, March 2005 (scheduled)
2. *Strain-induced metal-insulator phase coexistence in perovskite manganites*
Institute of Physics, Chinese Academy of Science, Beijing, China, December 2004
3. *Strain-induced metal-insulator phase coexistence in perovskite manganites*
Qufu Normal University, Qufu, China, November 2004
4. *Strain-induced metal-insulator phase coexistence in perovskite manganites*
Shandong University, Jinan, China, November 2004
5. *Theory of relaxation dynamics in normal metals and heavy fermion compounds*
Sung-Kyun-Kwan University, Su-Won, South Korea, May 2004
6. *Strain-induced metal-insulator phase coexistence in perovskite manganites*
2004 APCTP Focus Program of the Strongly Correlated Electron System, Asian Pacific Center for Theoretical Physics, Po-Hang, South Korea, May 2004
7. *Model for strain-induced metal-insulator phase coexistence in perovskite manganites*
Seoul National University, Seoul, South Korea, May 2004
8. *Heterogeneities in CMR perovskite manganites*
Korea Research Institute of Standards and Science, Dae-Jeon, South Korea, April 2004
9. *Model for strain-induced metal-insulator phase coexistence in perovskite manganites*
Korea Basic Science Research Institute, Dae-Jeon, South Korea, April 2004
10. *Self-organized nano and micrometer scale heterogeneities in perovskite manganites*
Dynamic Energy Landscapes and Functional Systems, Santa Fe, New Mexico, April 2004

11. *Bond-bending constraints and electronic inhomogeneities in oxides* (by A. R. Bishop)
2004 APS March Meeting, Montreal, Canada, March 2004
12. *New language for nanoscale lattice distortions*
Colloquium at Department of Physics in New Mexico State University, Las Cruces,
New Mexico, August 2002
13. *Effects of strains on magnetism in perovskite manganite thin films*
National High Magnetic Field Laboratory, Los Alamos, New Mexico, July 2001
14. *Magnetic, optical and elastic properties of perovskite manganites*
Oak Ridge National Laboratory, Oak Ridge, Tennessee, March 2000
15. *Charge and orbital ordering in perovskite manganites*
Los Alamos National Laboratory, Los Alamos, New Mexico, February 2000

Contributed Presentations

1. *Model for multiphase coexistence in perovskite manganites*
2004 APS March Meeting, Montreal, Canada, March 2004
2. *Atomic scale description of structural domain walls and relevance to CMR manganites*
2003 APS March Meeting, Austin, Texas, March 2003
3. *From atomic scale distortions to continuum elasticity*
Gordon Research Conference, Colby College, Waterville, Maine, June 2002
4. *Model of elastic energy connecting unit cell distortion and continuum elasticity*
2002 APS March Meeting, Indianapolis, Indiana, March 2002
5. *Microscopic theory of elasticity and its application to the charge and orbital ordering in perovskite manganites*
Local and Nanoscale Structure in Complex Systems, Santa Fe, New Mexico, January 2002
6. *Effects of microstructure on dielectric properties of $Ba_{0.6}Sr_{0.4}TiO_3$ films*
2001 MRS Fall Meeting, Boston, Massachusetts, November 2001.
7. *Effects of in-plane strain on magnetism in $LaMnO_3$ thin films*
46th Annual Conference on Magnetism and Magnetic Materials, Seattle, Washington, November 2001
8. *Effects of in-plane strain on magnetism in $LaMnO_3$ thin films*
Physical Phenomena at High Magnetic Fields – IV, Santa Fe, New Mexico, October 2001
9. *Effects of in-plane strain on orbital ordering and magnetism in $LaMnO_3$ thin film*
International Conference on Strongly Correlated Electron Systems 2001, University of Michigan, Ann Arbor, Michigan, August 2001
10. *Charge and orbital ordering in perovskite manganites*
2001 APS March Meeting, Seattle, Washington, March 2001

11. *Effects of uniaxial strain in LaMnO_3*
2000 APS March Meeting, Minneapolis, Minnesota, March 2000
12. *Optical and magnetic property of LaMnO_3*
44th Annual Conference on Magnetism and Magnetic Materials, San Jose, California, November 1999
13. *Anisotropy and temperature dependence of the optical conductivity in LaMnO_3*
Centennial APS Meeting, Atlanta, Georgia, March 1999
14. *Effects of uniaxial strain in LaMnO_3*
43rd Annual Conference on Magnetism and Magnetic Materials, Miami, Florida, November 1998
15. *Anisotropy and temperature dependence of the optical conductivity in LaMnO_3*
Physics of Manganites Workshop, Michigan State University, East Lansing, Michigan, July 1998
16. *Interplay of charge and orbital ordering in manganese perovskites*
1998 APS March Meeting, Los Angeles, California, March 1998
17. *Effects of Fe doping in the colossal magnetoresistive $\text{La}_{1-x}\text{Ca}_x\text{MnO}_3$*
41st Annual Conference on Magnetism and Magnetic Materials, Atlanta, Georgia, November 1996